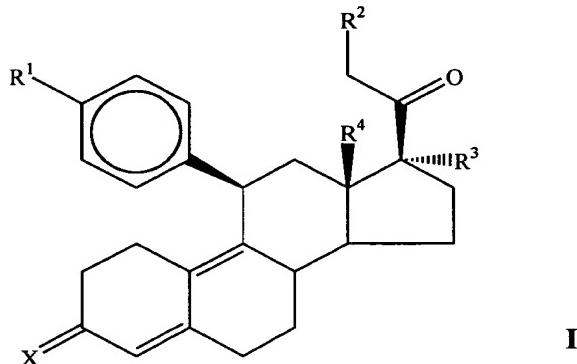


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Structural Modification of 19-Norprogesterone I: 17- α -Substituted, 11- β -Substituted-4-Aryl and 21-Substituted 19-Norpregnadienedione As New Antiprogestational Agents

ABSTRACT OF THE DISCLOSURE

The present invention relates, *inter alia*, to compounds having the general formula:



in which: R¹ is a member selected from the group consisting of -OCH₃, -SCH₃, -N(CH₃)₂, -NHCH₃, -NC₄H₈, -NC₅H₁₀, -NC₄H₈O, -CHO, -CH(OH)CH₃, -C(O)CH₃, -O(CH₂)₂N(CH₃)₂, and -O(CH₂)₂NC₅H₁₀; R² is a member selected from the group consisting of hydrogen, halogen, alkyl, acyl, hydroxy, alkoxy (*e.g.*, methoxy, ethoxy, vinyloxy, ethynloxy, cyclopropyloxy, *etc.*), acyloxy (*e.g.*, acetoxy, glycinate, *etc.*), alkylcarbonate, cypionyloxy, S-alkyl, -SCN, S-acyl and -OC(O)R⁶, wherein R⁶ is a functional group including, but not limited to, alkyl (*e.g.*, methyl, ethyl, *etc.*), alkoxy ester (*e.g.*, -CH₂OCH₃) and alkoxy (-OCH₃); R³ is a member selected from the group consisting of alkyl, hydroxy, alkoxy and acyloxy; R⁴ is a member selected from the group consisting of hydrogen and alkyl; and X is a member selected from the group consisting of =O and =N-OR⁵, wherein R⁵ is a member selected from the group consisting of hydrogen and alkyl.

In addition to providing the compounds of Formula I, the present invention provides methods wherein the compounds of Formula I are advantageously used, *inter alia*, to antagonize endogenous progesterone; to induce menses; to treat endometriosis; to treat dysmenorrhea; to treat endocrine hormone-dependent tumors; to treat meningiomas; to treat uterine leiomyomas; to treat uterine fibroids; to inhibit uterine endometrial proliferation; to induce cervical ripening; to induce labor; and for contraception.

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